

AMENDMENTS TO THE CLAIMS

The following is a complete list of all Claims in this Application (including WITHDRAWN Claims). Cancelled and not entered Claims are indicated with Claim number and status only. The Claims listed below show added text with underlining and deleted text with strikethrough. The status of each Claim is indicated with one of (ORIGINAL), (CURRENTLY AMENDED), (CANCELLED), (WITHDRAWN), (NEW), (PREVIOUSLY PRESENTED), or (NOT ENTERED).

- Please CANCEL Claims 16 and 20; and
- Please AMEND Claims 15, 19, 21, 23 and 24, in accordance with the following:

WHAT IS CLAIMED IS:

1. (WITHDRAWN) A method for bonding an adherent member to a printed circuit board comprising:

providing the printed circuit board having a substrate and a plurality of a first conductive pattern group formed at a peripheral portion of the substrate in the direction of the length of the substrate wherein an alignment characteristic of the first conductive pattern group is predetermined, at least in part, according to a thermal expansion degree of the substrate where the first conductive pattern group is positioned;

providing the adherent member having a plurality of a second conductive pattern group corresponding to the first conductive pattern group;

aligning the adherent member and the printed circuit board each other; and

bonding the adherent member to the printed circuit board by a thermo-compression bonding method.

2. (WITHDRAWN) The method of claim 1, wherein the determined alignment characteristic of the first conductive pattern group has the largest value at both ends of the substrate and the determined alignment characteristic of the first conductive pattern group decreases toward a point dividing the substrate into two portions.

3. (WITHDRAWN) The method of claim 1, wherein a thermal reaction property of a first half portion of the substrate is different from a thermal reaction property of a second half portion of the substrate when the substrate is divided lengthwise.

4. (WITHDRAWN) The method of claim 3, wherein the determined alignment characteristic of the first conductive pattern group positioned at the first portion of the substrate is larger than the determined alignment characteristic of the first conductive pattern group positioned at the second

portion of the substrate, wherein the thermal reaction property of the first portion of the substrate is larger than the thermal reaction property of the second portion of the substrate.

5. (WITHDRAWN) The method of claim 3, wherein intervals among the first conductive pattern group positioned at the first portion of the substrate are larger than intervals among the first conductive pattern group positioned at the second portion of the substrate, wherein the thermal reaction property of the first portion of the substrate is larger than the thermal reaction property of the second portion of the substrate.

6. (WITHDRAWN) The method of claim 1, wherein the thermo-compression bonding is performed through interposing an anisotropic conductive film between the printed circuit board and the adherent member.

7. (WITHDRAWN) The method of claim 1, wherein the second conductive pattern group has intervals aligned with the first conductive pattern group before the alignment characteristic of the first conductive pattern group is determined.

8. (WITHDRAWN) The method of claim 1, wherein the thermo-compression bonding is performed at a temperature of about 140 to 200°C.

9. (WITHDRAWN) The method of claim 1, wherein the printed circuit board is connected to a thin film transistor substrate of a liquid crystal display device.

10. (WITHDRAWN) The method of claim 1, wherein the adherent member is a tape carrier package.

11. (WITHDRAWN) A liquid crystal display device, comprising:

a liquid crystal display panel having a thin film transistor substrate and a color filter substrate attached to the thin film transistor substrate by interposing a liquid crystal between the color filter substrate and the thin film transistor substrate;

a printed circuit board electrically connected to the liquid crystal display panel;
and

an adherent member electrically connecting the liquid crystal display panel to the printed circuit board to operate the liquid crystal display panel, the adherent member attached to the printed circuit board by a thermo-compression bonding method, wherein a thermally

expanded conductive pattern group of an output of the printed circuit board is substantially in alignment to a conductive pattern group of an input of the adherent member.

12. (WITHDRAWN) The liquid crystal display device as claimed in claim 11, wherein a thermal reaction property of one half portion of the printed circuit board is different from a thermal reaction property of the other half portion of the printed circuit board when dividing the printed circuit board lengthwise.

13. (WITHDRAWN) The method of claim 1, wherein the alignment characteristic comprises one or more of a position of the first conductive pattern group and a position of elements within the first conductive pattern group.

14. (WITHDRAWN) The method of claim 13, wherein the alignment characteristic is determined with respect to an original alignment characteristic of the first conductive pattern group that is determined without considering the thermal expansion degree of the substrate.

15. (CURRENTLY AMENDED) A method for manufacturing a bonded tape carrier packages and printed circuit board, comprising:

forming a first conductive pattern group on the printed circuit board in accordance with the thermal expansion properties of the printed circuit board such that intervals between ones of the first conductive pattern group are smaller than intervals between ones of corresponding tape carrier packages;

thermocompression bonding the tape carrier packages and the printed circuit board;
and

during the thermocompression bonding, allowing the printed circuit board to expand such that the first conductive pattern group is substantially aligned with second conductive pattern group provided on the tape carrier packages.

16. (CANCELED)

17. (PREVIOUSLY PRESENTED) The method of claim 15, further comprising, before said forming, measuring the thermal expansion properties of the printed circuit board.

18. (PREVIOUSLY PRESENTED) The method of claim 15, wherein the intervals between ones of the first conductive pattern group are asymmetric when the printed circuit board is asymmetric.

19. (CURRENTLY AMENDED) A printed circuit board that is to be electrically connected to an external device through a plurality of tape carrier packages spaced apart from each other, the printed circuit board comprising:

a substrate; and

a plurality of printed circuit board land groups formed on the substrate, each one of the printed circuit board land groups corresponding one-to-one with one of the tape carrier packages, an interval between the printed circuit board land groups being smaller than an interval between the tape carrier packages.

20. (CANCELED)

21. (CURRENTLY AMENDED) The printed circuit board of claim 19, wherein the interval between the printed circuit board land groups becomes substantially same as the interval of the tape carrier packages by thermal expansion when the printed circuit board undergoes a thermo-compression bonding process.

22. (PREVIOUSLY PRESENTED) The tape carrier package of claim 19, wherein the interval between the printed circuit board land groups is asymmetric when the printed circuit board is asymmetric.

23. (CURRENTLY AMENDED) A method of manufacturing a printed circuit board that is to be electrically connected to an external device through a plurality of tape carrier packages spaced apart from each other, comprising:

forming printed circuit board land groups that correspond one-to-one with each of the tape carrier packages on a substrate such that an interval between the printed circuit board land groups is smaller than an interval between the tape carrier packages.

24. (CURRENTLY AMENDED) The method of claim 23, wherein the interval between the printed circuit board land groups is determined by:

measuring an amount of total thermal expansion of the substrate under a thermo-compression bonding process, and

obtaining the interval between the printed circuit board land groups by considering the amount of total thermal expansion.